ANTI-TUMOR AGENTS THAT EFFECT PREMATURE CHROMOSOME CONDENSATION

SUMMARY

The National Cancer Institute Laboratory of Molecular Pharmacology seeks parties interested in licensing or collaborative research to co-evelop, evaluate, or commercialize lasonolide compounds as novel anti-cancer agents.

REFERENCE NUMBER

E-247-2008

PRODUCT TYPE

- Therapeutics
- Research Materials
- Diagnostics

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

The National Cancer Institute Laboratory of Molecular Pharmacology seeks parties interested in licensing or collaborative research to co-evelop, evaluate, or commercialize lasonolide compounds as novel anti-cancer agents.

Lasonolide A is a natural product initially isolated from an extract of the shallow water Caribbean marine sponge. The chemical structure of lasonolide A was identified in 2002, and it was chemically synthesized in 2007. Llasonolide A was found to have anti-proliferative and anti-metastatic properties useful for cancer treatment via induction of premature chromosome condensation in non-dividing cells.

Analysis of cytogenetic composition of the genome of non-dividing cells is not straightforward because the chromosomes are loosely distributed in the nucleus, and the current cytogenetic methods used to condense chromosomes are cumbersome and inefficient. Lasonolide A may be useful for performing cytogenetic studies in cells by inducing premature chromosome condensation without inducing mitosis. The compound may be useful in studying normal or cancer stem cells. In addition, NCI researchers found that lasonolide A inhibits cancer cell motility and may be used as an anti-cancer agent by itself or in

combination with other anti-cancer agents.

Further research is needed for large-scale synthesis of lasonolide A a) for use as a premature chromosome condensation reagent and as an anti-cancer agent; and b) to conduct animal studies in xenograft models with lasonolide A alone or in combination with existing drugs that target chromosomes.

POTENTIAL COMMERCIAL APPLICATIONS

- A new reagent for inducing premature chromosome condensation in non-dividing cells
- A novel anti-cancer agent with a unique mechanism of action

COMPETITIVE ADVANTAGES

- Ability to conduct cytogenetic studies of stems cells and other types of cells without inducing mitosis
- Quick and non-toxic method of inducing premature chromosome condensation
- Reversibility of chromosome condensation upon drug removal

INVENTOR(S)

Yves Pommier et al. (NCI)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **U.S. Issued:** US 8,278,100

THERAPEUTIC AREA

- Cancer/Neoplasm